NC STATE UNIVERSITY

College of Agriculture & Life Sciences

Department of Horticultural Science

Horticulture Information Leaflet 551
Revised 8/99 -- Author Reviewed 8/99

Bed Preparation and Fertilization Recommendations for Bedding Plants in the Landscape

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For healthy, aesthetic plants, the soil must serve as a reservoir for water, oxygen, and nutrients. While this sounds very straightforward, providing these three essentials can be quite challenging. The first step in evaluating a soil for bedding plants is to examine water retention and aeration characteristics. Both water and oxygen are required for plant growth, the challenge is maintaining a proper balance between the two.

Soil Texture

Soil consists of solid particles (sand, silt and clay) and pores (spaces for air and water). Coarse-textured soils (sandy) have good drainage and plenty of oxygen but retain little water. The opposite is true for fine-textured soils (clay) where drainage and aeration are poor, but water is plentiful. The texture will determine whether maintaining water or oxygen will be your biggest problem. In clay soils, providing enough aeration will be your biggest concern. On the other hand, maintaining enough water will be your biggest challenge for sandy soils.

Soil Amendments

Both of these problems can be improved by amending the soil. Properly amended clay soils will have adequate drainage to supply both water and oxygen. The best amendments for clay soils are pine bark humus (< 1/2" in diameter), composted leaf mold, or small pea gravel (< 3/8"). Be careful when selecting leaf mold, and make certain that the material is fully composted and not merely "aged." Decomposing materials will compete with plants for nutrients, especially nitrogen and sulfur, resulting in nutrient deficiencies and poor plant growth.

Peat moss, sand, hardwood bark, sawdust, wood chips and pine straw are not recommended for clay soils. Addition of these materials will not adequately improve the physical properties of a clay soil. Amendments to clay soils must be incorporated to at least 25% by volume to be effective. For example, to result in approximately 8 inches of amended soil, a minimum of 2 inches of the amendment should be incorporated into the top 6 inches of soil. This also helps raise the bed which will not only improve drainage but will also make bedding plants look more attractive. Incorporating up to 50% by volume will probably improve plant growth. Incorporating over 50% may have a negative effect on plant growth, while incorporating less than 25% by volume is a waste of time and material.

Amendments such as pine bark humus, composted leaf mold, or peat moss will improve water retention in sandy soils. Similar to clay soils, these amendments need to be added at a minimum of 25% by volume and a maximum of 50%.